WINFIELD (J. M.)
DR. J. M. WINFIELD,
1255 PACIFIC STREET,
BROOKLYN, N. Y.

BLOOD EXAMINATIONS

REGARDING THE

MALARIAL ORIGIN OF ZOSTER

BY
JAMES M. WINFIELD, M. D.
BROOKLYN

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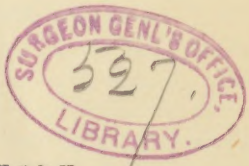

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BLOOD EXAMINATIONS

REGARDING THE MALARIAL ORIGIN OF ZOSTER.*

The uncertainty regarding the ætiology of zoster makes it a disease of considerable interest to the neurologist as well as to the dermatologist. As each new theory is carefully investigated and found inadequate, others are advanced.

A brief *résumé* of the views taken by dermatological writers will serve as a suitable introduction to this paper.

In the older works, such as those of Cazenave (1), Erasmus Wilson (2), and Tilbury Fox (3), we find that zoster was considered a disease of childhood, that it sometimes appeared to be of an epidemic nature, and that outbreaks were often influenced by certain atmospherical and seasonal changes. Bazin (4) held the opinion that arthritic affections, such as rheumatism, were important ætiological factors, particularly when it occurred in children.

The recent writers—Duhring (5), A. R. Robinson (6), Crocker (7), *et al.*—agree in the main with the older observers. Hyde (8) puts malaria among the possible causes. Of late years there has been a growing belief that true idiopathic zoster was of infectious origin. Kaposi (9) supports

* Read before the Medical Society of the State of New York at its eighty-ninth annual meeting.

this theory on the following grounds: That the disease generally occurs in small epidemics, and that it rarely attacks a person twice in a lifetime. Erb (10) says zoster is only the local manifestation of a constitutional malady, derived from some specific germ. Landouzy regards it as an acute infectious disease, and that change of weather and season is probably necessary for the development of the pathogenic germ. No specific organisms have yet been isolated; although many have been described by various observers, none have thus far responded to control tests.

Bramwell (11) has succeeded in cultivating several distinct organisms from the vesicular fluid; but, as the subject is still under investigation, he has not given his conclusions. Pfeiffer (12) and Wasielewski (13) consider these bodies from the zoster vesicle to be of the protozoa order; but Hartzell (14), of Philadelphia, has found these so-called psorosperms in traumatic herpes as well as in the idiopathic, which would go to show that these bodies were the result of inflammation, rather than the cause of the disease.

It will be seen from this short reference to authorities that the ætiology of zoster is still uncertain. While all agree that it is a neuropathic disturbance depending upon some irritation of the nerves, what this irritant is remains undetermined.

My attention was called to the possibility that zoster was of malarial origin by observing that many of the patients lived in districts noted for malarial diseases, and that quinine would often mitigate the severer symptoms. Actual examinations of the blood of zoster patients for the plasmodium were begun about a year ago, and, with the exception of cases like that reported by Henry Jackson (15), of Boston—which have an indirect bearing on the subject—the appended results are perhaps the first on record. *The cases were carefully selected to exclude traumatism,*

rheumatism, tuberculosis, or any other condition that might have an ætiological bearing on herpes zoster.

Case I.—A robust man, aged forty-three years, living in the part of Brooklyn known as Red Hook Point, a locality noted for malarial diseases. Previous to the prodromal neuralgia he had suffered from malaise, chilliness, and other symptoms frequently seen in chronic malarial poisoning. The advent of the zoster, involving the right intercostal region, was accompanied with a severe chill, followed by fever and sweating. Temperature twelve hours after chill, 100·5°.

Examination of the blood showed the plasmodium in large quantities; the forms were the mulberry and intercellular bodies, and also others which bore a close resemblance to those described by Golgi (16).

Case II.—A lad, aged seventeen years, consulted me for a well-marked double intercostal zoster. For three weeks previous to the herpetic eruption he had suffered from symptoms suggestive of paludism. Temperature when first seen, 101°. Three different examinations failed to reveal any organisms, although the leucocytes were unusually numerous.

Case III.—A boy, aged three years, lived in a poor-class tenement, on a street where they were excavating for a sewer. The child was in a poor, run-down condition, skin yellow and waxy; liver, spleen, and lymphatic glands enlarged. Temperature at first visit, 102°. There was a beginning left intercostal zoster, which had been ushered in by rigors and other febrile symptoms. Plasmodia were found in abundance.

Case IV.—Female, aged ten years. Physical condition and symptoms similar to Case III. Temperature, 99·5°; blood showed the presence of the mulberry and flagellate forms of the parasite.

Case V.—A girl, aged twelve years. Had been feeling ill for three weeks, although no physician had been consulted until the advent of the zoster eruption. This involved the left thorax and arm. In addition to the herpes the child was feverish—temperature, 100°—had considerable adenopathy and splenic enlargement. A cover glass was prepared, but before the speci-

men could be examined it was broken, and, as she had been taking large doses of quinine, all further attempts at examination were abandoned.

Case VI.—A man, forty years old, employed in an excavation near the river front. He had been feeling badly for over a month before the herpetic eruption. He said that he was chilly, and every third day had headache and felt feverish. He had received no medication until forced to seek relief for a severe zoster involving the scapular, brachial, and intercostal regions of the right side. The temperature in this case was higher than any of the others, it being 102·5° in the axilla. Examination of the blood was unsatisfactory, from inability of the observer to continue a long and careful search.

Case VII.—Hospital patient, a man, aged thirty-two years, transferred from the medical to the skin ward. Gave a history of intermittent fever of one month's duration. The right gluteal and upper femoral regions were the sites of a well-marked necrotic zoster. The temperature during his stay in the hospital varied from normal to 102°. Examinations for the plasmodium negative, white blood-corpuscles numerous. It was subsequently learned that he had been taking a hospital mixture containing quinine, which would have made the examination negative had there been any organisms present in the beginning of the disease.

As the detection of the malarial parasite requires considerable skill and experience, specimens from each case were examined by different gentlemen, and it gives me great pleasure to thank Dr. A. C. Brush and Dr. E. H. Wilson for their kindness in helping to verify my observations.

To make a proper examination it is better to procure the blood at the beginning of the eruption; and, as quinine and probably coal-tar derivatives have a destructive influence on these germs, none of those drugs should be administered before the examinations are made. In recapitulation it will be seen that out of seven cases thus far, in three there were unmistakable evidences of malarial poison,

as shown by the presence of the plasmodium of Laveran. One case was negative, one uncertain, another not examined on account of the breaking of the specimen, and the remaining one was probably rendered sterile by the administration of doses of quinine. It is thus demonstrated that nearly fifty per cent. of the cases showed the presence of malarial infection; and it is probable that some of those remaining would have presented the same could a proper examination have been made. Although the cases reported here are limited in number, still, with this undoubted evidence, the conclusion is warranted that malaria can and does produce herpes zoster. From our knowledge of the way malaria occurs, it is evident that if it causes herpes at all, it can explain the relative epidemics of zoster that have been described, though other causes may also be sufficient.

Those given in this paper were not of the epidemic type; they were the true idiopathic form occurring at all seasons of the year; hence it shows with certainty that this infection may also produce sporadic cases. It is further seen that the larvated and chronic forms of intermittent poisoning are those that produce this skin affection; for, in all of those here reported, and many others in which no blood examinations were made, symptoms were observed suggestive of paludism, such as sleepiness, yawning, etc. Just how the parasite accomplishes its results can not be stated. It may be by clogging up the terminal arteries, or there may be some localized toxic effect on the intervertebral nerve ganglia, or it may be the result of a general toxæmia. As it is not the purpose of this paper to discuss pathology, but to state an ætiological fact, we will leave this subject for further study.

Of the different theories of the cause of zoster, the infectious appears to have the greatest weight of evidence in

its favor. From the earliest writers to those of the present day it has been a well-recognized fact that many cases of this disease occur at the change of seasons. The claim that this skin eruption attacks a person but once in a lifetime is probably incorrect; for in a disease which is in itself uncommon, recurrences would, in the same proportion, be exceedingly rare, and of late several exceptions to this rule have been reported.

Malaria has been recognized as an influencing agent in many diseases which have been ætiologically obscure. Twenty years ago Yandell (17) maintained that it was able to cause nearly all the acute dermatoses. It matters not how correct his theories were, but if the miasmatic parasite had then been known, it is probable that his views regarding herpes would have been relegated from the field of speculation to that of assured facts.

In passing, a few moments might be given to the question of the identity or non-identity of herpes zoster and herpes febrilis. The identity of these affections was first defended by Bärensprung; since his time many observers have added their assent. Clinically, the two diseases differ somewhat; but if the germ that produces the facial herpes of intermittent fever can also cause a true idiopathic zoster, as the above cases show, it is clear that, in spite of the clinical variations, their ætiology is often identical. I do not wish to be understood as saying that malaria is the only poison that causes the herpetic eruption, but I think it should be placed in the front rank of ætiological factors, for it is confidently believed that the observations begun in Brooklyn will be verified in other parts of the world, especially in those localities where malarial diseases are more or less prevalent.

Note.—Since this paper was written the following additional case has come under observation:

H. S., aged forty-eight, a plumber's laborer, had been exposed by his occupation more or less to sewer gas. During the greater part of last winter he had been employed in a damp cellar, where there was an open, untrapped soil pipe. About six weeks previous to the zoster outbreak he began to have a variety of symptoms which his physician called malarial. He frequently had chills, fever, and sweating. According to his story, it appears that these phenomena did not occur with any regularity. Three weeks after—that is, three weeks before the zoster—he began to suffer from "facial neuralgia" (?). This continued intermittently until thirty-six hours before his visiting the skin department of the Long Island College Hospital, when a few vesicles formed on the ear and right side of the face. This herpetic process rapidly spread until the cervical, scapular, brachial, and upper thoracic portions of the right side were covered with a well-marked zoster eruption. Some of the older vesicles were becoming necrotic. The temperature at that time was 100° F. An immediate examination of a fresh specimen of blood revealed the intercellular and free pigmented forms of the plasmodia.

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